

ABSTRACT

A thin film semiconductor apparatus comprising thin film transistors integrated on a substrate, and a wiring connecting the thin film transistors to one another, wherein each of the thin film transistors comprises a channel which has a predetermined threshold voltage and on-off operates depending on a gate voltage applied through a wiring, wherein at least a part of the thin film transistors comprises a semiconductor thin film constituting the channel, and a first gate electrode and a second gate electrode disposed on a surface and a back surface of the semiconductor thin film through an insulating film, wherein the first and second gate electrodes receive a first gate voltage and a second gate voltage, respectively, through wirings which are separately provided, wherein the first gate electrode on-off controls the channel depending on the first gate voltage, and wherein the second gate electrode actively controls the threshold voltage depending on the second gate voltage to render the on-off operation of the thin film transistors appropriate. The semiconductor apparatus of the present invention is advantageous in that the threshold voltage can be actively controlled in accordance with the dispersion of the threshold voltage, so that an increase in consumed power, an erroneous operation and the like can be suppressed. Thus, it is possible to stably provide a high performance threshold voltage circuit array in high yield.